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ABSTRACT

This pilot study tested the effectiveness of direct instruction about disadvantages of aggressive behavior in helping sociometrically rejected kindergarten children break patterns of aggression. The intervention sought to change children's behavior by increasing their knowledge of the effects of their behavior on other children and by giving them opportunities to practice new behavior patterns. It was hypothesized that: (1) strengthening sanctions against aggression and increasing knowledge of the negative effects of aggressive behavior; (2) creating opportunities for children to act out ineffective ways of interacting and practice alternative methods of interacting with children; and (3) supporting generalization of these alternative strategies would be effective methods of reducing aggression and improving children's social skills. It was further hypothesized that decreased aggressive behavior and increased social skills would result in increased sociometric standing. The treatment was implemented in two public school kindergartens. Participants were five males and three females. Each child was trained individually in sessions of about 12 minutes per child. Sessions focused on hitting, verbal aggression, tattling, and derisive laughter. Sociometric and teacher assessment data were collected. Results are discussed. Over 50 references are cited. Data tables, intervention script, and other related materials are appended. (RH)

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SOCIAL SKILL TRAINING INTERVENTION WITH AGGRESSIVE YOUNG CHILDREN

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Introduction

Facilitation of social development is a goal frequently cited by developers of educational programs, particularly on the early childhood and elementary levels. For the most part, however, social development, unlike cognitive development, is an informal rather than a formal part of the typical early childhood or elementary classroom.

Social skills training research departs from this informal pattern by examining the impact of direct instruction and modeling as intervention tools with children who have been found to have social skill deficits. The justification for this departure includes the notion that social skills may be important in facilitating the adequacy of the child's interaction with peers and that adequate peer relationships play a vital role in the child's present and future well being.

Although social skill training research with children has expanded rapidly in recent years (Asher, 1985), most studies have examined the impact on training in prosocial skills. If dealt with at all, aggressive behavior, for the most part, has been treated indirectly as a behavior which, it is hoped, will be reduced with the emergence of the trained for prosocial skills (Coie & Koeppl, in press).

The present study, intended as a pilot for a later project, examines the efficacy of addressing aggressive behavior directly through a social skill training intervention with kindergarten aged children. Specifically, it is hypothesized in the present study that children's aggressive behavior will be reduced and overall social skillfulness will be increased by: 1) increasing the child's knowledge of the negative effects of aggressive behavior on friendship making, 2) creating opportunities for children to act out ineffective (in that they are aggressive) ways of interacting, followed by more effective ways of interacting with other children, and 3) supporting generalization of these alternative strategies. It is further hypothesized that a decrease in aggressive behavior and increase in overall social skillfulness will lead to improved sociometric standing.

Young children, ages three through six, are of particular interest and this age group will be emphasized in the literature reviewed.

Review of Related Research

The Importance of Social Interaction and Development

There is reason to believe that peers play an important part in the child's development. Suomi and Harlow (1975), for example, compared the effects of early peer deprivation and maternal deprivation on the development of infant monkeys. Overall, they found that peer deprivation appeared to have deeper and longer lasting adverse consequences than maternal deprivation. They concluded that most social learning in monkeys takes place among peers and that peer deprivation, therefore, has greater consequence.

Piaget (as cited by Kamii, 1973) has emphasized the importance that peers play in the child's social and cognitive development. It is with peers that the child, among equals, must confront the beliefs of those who see things differently. By hearing different ideas and by having their own ideas challenged, children begin to evaluate and reexamine their beliefs and perceptions. Social interaction with peers is, in Piaget's view, a natural source of paradox or disequilibrium which leads to the child's social-cognitive growth. If this is the case, then one might predict that children who do not experience a "normal" amount of peer interaction consistently over a number of years may evidence deficits in social cognitive development (Rubin, 1986).

Specifically, it has been suggested and supported by research that low-accepted children may miss out on multiple opportunities for positive peer interaction and, therefore, may be at risk for a number of later life difficulties (Putallaz & Gottman, 1982). These difficulties include greater frequency in academic failure and dropping out of school (see Parker & Asher for review, 1987), increases in criminality (Parker & Asher, 1987), and later mental health problems (Cowen, Pederson, Babigian, Izzo, & Trost, 1973).

Some recent findings in a longitudinal study conducted by Schweinhart, Weikart, and Larner (1986) also suggest that adequate social interaction may play a vital role in the future well being of the child. This research compared the long term effects of three preschool programs on populations of children from low income families. Two of the preschool programs, although different in some respects, emphasized helping children develop positive social skills and provided a context where opportunities for social interaction were plentiful. In the third program, which was more formal, teacher directed, rapid fire, and drill based, the child's acquisition of social skills was not an articulated goal or value and, in addition, there was less opportunity for social interaction.

When the youths who had attended one of the three programs were compared at age fifteen little difference in IQ or academic achievement was found. Children participating in any one of the three preschool programs significantly

exceeded the control group in IQ as well as achievement in school. However, a strong positive link between indicators of social maladjustment and the preschool program which did not emphasize social development was found. Children from this group engaged in twice as many delinquent acts as did the other two groups, including five times as many acts of property violence. This group also engaged in higher levels of drug abuse, reported poorer family relations, less participation in sports, and lower expectations for educational attainment. These findings are consistent with other research (see Johnson, Johnson, Holubee, & Roy, 1984) which indicates a positive relationship between indicators of psychological health and educational models which allow for and encourage social interaction and development in students.

Research findings such as those cited in this section, then, are leading to an increased understanding of the importance adequate social experience plays in the child's development. There are many and varied reasons a child might experience decreased opportunities for social interaction with peers. Of central concern to the present discussion is the role aggression may play in reducing the child's opportunity for social interaction.

The aggressive child is often rejected by other children. Thus aggressive behavior may be seen as behavior which interferes with the child's acquisition of adequate social experience. The next sections will briefly review the

etiology of aggression, social skill training research in general, and social skill training which has dealt with aggressive behavior.

Social Skill Training Intervention Research With Young Children

The social skill training literature related to children has grown steadily in the last two decades. Much of the research conducted most recently has involved skill training with elementary aged children; but in a persistent portion preschool aged children served as subjects.

Social skills have been defined by Ladd and Mize (1983) as,

> . . . children's ability to organize cognitions and behaviors into an integrated course of action directed toward culturally acceptable social or interpersonal goals.

A model of the social skill training process, proposed by Ladd and Mize (1983), is helpful in that it highlights three features which may be useful as a yardstick and guide for past research and future social skill training research. Ladd and Mize suggest that children who possess effective skills: 1) possess knowledge about appropriate social goals and knowledge of strategies for achieving those goals, 2) are able to act in accordance with that knowledge (performance proficiency), and 3) are able to monitor their ongoing social interaction and generalize social knowledge gained in interaction to varied subsequent interactions. Deficits in one or more areas are seen as increasing the

likelihood that a child will be rejected by peers. Facilitation, therefore, of all three components is seen as important to the success of a SST intervention.
Only one early childhood study to date, Mize & Ladd (1988), used all three components of the model suggested by Mize and Ladd. The following sections will look more closely at each of these components.

Skill knowledge. There is reason to believe that simply increasing a child's knowledge of the characteristics of a social skill may increase his or her facility with that skill. Social skills are often made explicit to preschool and kindergarten aged children. For example, "we say 'thank you' when someone gives us something", is a common phrase in a early childhood classroom. Social skill training interventions extend the range and depth with which specific skills are made explicit to the child.

Several methods, including direct instruction and modeling, have been used to increase children's social skill knowledge. Zahavi and Asher (1978), for example, successfully used direct instruction alone with children ages three to five. This study will be discussed more fully shortly.

In another study O'Connor (1969) used modeling as a means of instruction in social skills. Children identified as isolates viewed a film which showed preschool children successfully seeking entry into an ongoing group of children. A narrator pointed out, in a manner similar to

direct instruction, key concepts during the film. The children who viewed the film significantly increased their rate of interaction. This rate remained stable at follow up several weeks later. These results were subsequently replicated by O'Connor (1972).

Keller and Carlson (1974) used O'connor's film to teach social skill. Significant increases in interaction rates for those children who viewed the film were documented. Follow up several weeks later, however, indicated no significant differences between the treatment group and the control group.

Gottman (1977), however, conducted a similar study examining the effects of a film modeling entry behavior on the sociometric status and behavior of four head start children. Although, he found no change in behavior or sociometric status, he did not record immediate posttest results and, therefore, may have missed treatment effects which subsequently faded.

It should be noted that most of these studies used low rates of interaction to assess isolate behavior. This method has been called into question as legitimate indicator of isolate behavior (Gottman & Schuler, 1976; Asher, Markell, & Hymel). It is conceivable, particularly with preschool aged children who spend a good part of their time engaged in individual play, that many of the children judged to be "isolates" were, in fact, well within the norm in their rate and, more importantly, in the quality of their

interactions.

The studies discussed in this section implemented interventions which were relatively brief. In addition, they did not provide opportunities for practice or generalization. The failure of some to obtain and maintain results is, therefore, not surprising. Overall, they do provide some support for the notion that increasing the child's knowledge of social skills can be effective in increasing social skillfulness.

Performance proficiency. A feature of SST research which is increasingly emphasized is the need to give the child opportunities for rehearsal and/or practice in the social skill being taught. This is consistent with Piaget's insistence that the fuller the child's active mental participation in the subject matter to be learned, the more complete the assimilation of new information. The child must act on, not just record, the environment (Almy, 1976). This may be a particularly important component in SST interventions with young children where cognitive and linguistic capabilities are more limited.

Rehearsal may take the form of verbal rehearsal and/or physical rehearsal or practice in the skill to be learned. Spivack and Shure (1974)), for example, after giving isolated preschool children verbal instruction in social skills, had the children verbally rehearse their strategies for implementing proposed social actions.

Some researchers have looked at the effectiveness of an

increase in the desired social behavior itself, without an concurrent increase in knowledge about the desired social skill. In O'connor's 1972 study, for example, shaping was examined as a means of increasing rates of interaction. In the shaping procedure graduate students reinforced children identified as isolates for increasing approximations of social interaction. The results were positive, the children did increase their rate of interaction with other children, but the rate quickly returned to baseline when reinforcement was withdrawn.

In another study, Bierman and Furman (1984) examined the effectiveness of three treatment conditions: 1) direct instruction in conversational skills, 2) involvement in a group process designed to increase the interaction of a group of children (including children identified as isolated) with one another and thus break down barriers which may have built up between isolated children and their peers, and 3) direct instruction in conversational skills and involvement in a group process as described above. Children in the first condition, skills training only, increased in social skillfulness but did not increase in rates of acceptance by peers. Children in the second condition, group process only, increased their rate of interaction with peers and their sociometric status. Gains, however, were temporary. Children in the third condition, group process and social skills training, increased in sociometric status and in social skillfulness. In addition,

at follow up, children in the third condition continued to make gains.

These studies indicate that increases in targeted social behaviors, such as increased rates of interaction, may be a desirable part of an intervention, but do not by themselves bring about lasting changes. How essential they are, as components in effective SST interventions, is a question which needs further exploration.

Skill generalization. The final component in the Ladd and Mize (1983) model is self-monitoring and skill generalization. Generalization refers to the process whereby the child moves from assimilating the skill concept and practicing its use, to application and use of the skill in the course of normal, everyday social interaction. Implicit in this process is the ability to continuously monitor and modify one's behavior in accordance with incoming social information.

An example of an attempt to reinforce this phase is provided by a study by Oden and Asher (1977). Third and fourth grade children were instructed in social skill concepts and given opportunities to verbally and physically practice those concepts. The instructor then focused the instruction on activities in the classroom where the child might try out the new skills. The child was challenged to come up with her own examples of ways she might try out the new skills and was instructed to try out some of those self generated strategies in the coming week. During the next

training session, the instructor then asked the child if she had tried out some of those strategies and how it went. Although this phase of the model may be difficult to implement with a preschool population, an example of how it was carried is contained within the following section.

Research which combines skill knowledge, proficiency, and generalization. A recent study by Mize and Ladd (1988) is significant in its efforts to adapt the Mize and Ladd social skill training model to the preschool population. Preschool children identified as sociometrically neglected or rejected were selected for a SST intervention or control group. Skill knowledge was transmitted through puppets who acted out and discussed the benefits of targeted skills. Because young children are less proficient than older children at inferring causes of behavior (Shantz, 1983), the puppets made explicit the connections between a character's reaction and another character's social behavior. During each session the puppets asked the children to recall and verbally rehearse the skill concepts.

The puppets were then used to encourage the children to try the skill and to give feedback on the child's use of the skill. By the final training sessions many children were using the trained skills routinely.

The generalization of the skill was promoted in several ways. For example, the instructor went into the classroom individually with the treatment children and remained near a

treatment child for twenty minutes while suggesting ways the child might use the skills taught. Because instructors routinely spent some time in the classroom at each visit to the school, the researchers report that the other children did not seem to notice these visits.

The results of this intervention indicate social skill training interventions can be successful with preschool aged children. Treatment children doubled the number of times they used the targeted skills in the classroom. Control children, on the other hand, remained at the same level. Sociometric status increased for treatment children immediately after skill training but not significantly. At a follow up assessment one month later, however, sociometric status had further increased for treatment children.

Overview of Research on Aggression

Research on aggression and speculation on its etiology are voluminous (for review see Parke and Slaby, 1983). Aggression is a behavioral pattern humans share with the vast majority of animals (Eibl-Eibesfeldt, 1975). It serves several functions including the defense of territory from members of one's own species, selection of mates, and the preservation of social stability through the formation of pecking orders (Eibl-Eibesfeldt, 1975).

In addition there is a great deal of evidence that exaggerated and distorted forms of aggression in humans are promoted such socializing agents as television and movies

(for review of the research see Parke & Slaby, 1983).

There is also considerable evidence that parental patterns of childrearing contribute to the development of aggressive patterns of behavior (Parke, & Slaby, 1983; Baumrind, 1971; Sears, MacCoby, & Levin, 1957).

Aggressive behavioral patterns within the human species are complicated by social structures which are far more tangled, elaborate and layered than those found in species living in more "natural" physical and social environments. The classroom of twenty or more same age mates does not occur in nature, for example. It may be that in this and other similarly "civilized" settings, aggressive behavior patterns, which might have been considered functional in primitive societies, become dysfunctional.

Whatever the etiology of aggressive behavior in particular children, research reviewed in the following pages seems to indicate that it often becomes dysfunctional in that it sabotages a child's present and future well being. When this occurs some form of intervention seems indicated and may be of help to the child.

Aggressive Behavior and Rejection by Peers

Some information is available on the behavioral characteristics of popular and unpopular children as related to aggressive or negative behavioral patterns. Hartup, Glazer, and Charlesworth (1967), for example, in a well known study, assessed both positive and negative sociometric

choices as related to observational data on positive and negative behavior patterns. Strong correlations were found between sociometrically rejected children and children demonstrating behavioral patterns judged to be "negatively reinforcing." Negative reinforcement was defined as noncompliance, interference with others, derogation of others, and attack.

Putallaz and Gottman (1981) observed different combinations of popular and unpopular children. Their findings included the tendency among unpopular pairs to display more disagreement and less agreement than popular pairs. In addition, disagreement among the unpopular pairs was more likely to lead to heightened tensions or "squabbling." Unpopular children were less likely to report specific reasons for their disagreements as well as constructive alternatives to an escalation of hostility. These children were described as "cranky" and "volatile."

Markell (1981) argues that research such as that of Putallaz and Gottman (1981) and Hartup et al. (1967) seem to indicate that negative, rather than aggressive, behavior may be a more useful way of categorizing behavior which is related to sociometric rejection. Markell (1981) argues that clinical impressions gained from pilot observations of unpopular children suggest that physical aggression is a behavior which does not appear at high levels. However, behaviors which might be termed "negative", such as those recorded in the Putallaz and Gottman (1981) study and the

Hartup et al. (1967) study, are observed frequently among unpopular children. The present study includes the behaviors termed by Markell as "negative", under the category of "verbal aggression."

Aggression and Social Skill Training

The typical orientation of social skill training interventions has been to train children in prosocial skills (Coie & Koeppl, in press). Aggression, the most often cited social problem among children and the behavior most predictive of later life difficulties (Parker & Asher, 1987) as well as a behavior which has been found to be markedly stable over time (see Olweus, 1979 for a review of longitudinal studies of aggression), has rarely been dealt with directly in social skill training interventions.

In addition, there is some evidence to suggest that, while skill training improves the social skill levels of some unaccepted children, its effectiveness with children who are sociometrically rejected and show high rates of negative behavior is still unproven and in some cases appears to be unfounded. Coie and Krehibiel (1984), for example, trained socially rejected children is social skills. They found only partial improvements in sociometric status and no changes in classroom behavior.

Bierman, Miller, and Stabb (1987) have, thus, suggested that SST interventions might be more effective with rejected children if the negative behavior patterns these children

exhibit were dealt with directly. Zahavi & Asher (1978) implemented one of the few cognitively based coaching studies (see Asher, 1985) which dealt directly with aggressive behavior rather than teaching prosocial skills. In a very simple intervention, consisting of one brief session with individual children, the classroom teacher discussed the disadvantage of aggressive behavior in making and keeping friends. Despite the simplicity and relative brevity of the intervention, results indicated the sessions had a significant effect on the children's behavior.

More recently, Bierman et al. (1987) explored the effects of social skill training coupled with prohibitions specifically aimed at reducing aggressive behavior. Thirty-two boys, in grades 1-3, who were identified on the basis of negative sociometric nominations and negative social behavior, were randomly assigned to one of four conditions. These conditions were as follows: 1) instructions to promote positive social behavior were given in the tradition of most SST interventions, 2) prohibitions to reduce negative social behavior were given, 3) both instructions to promote positive social skills and prohibitions to reduce negative social behavior were given, 4) no treatment was given. The researchers found that only the combination of skill training instructions and prohibitions against aggression led to sustained improvement in sociometric ratings from nontarget treatment partners.

These studies lend credence to the possibility that

dealing directly with aggressive behavior may be a productive way of helping children who exhibit high levels aggressive or negative behavior and are sociometrically rejected.

Selection of Kindergarten Age Group

Because social development is so often stated as a goal in early childhood programs and the elementary years are already primarily devoted to academic concerns, the preschool and kindergarten years may be particularly well suited to social skill training interventions. In addition, early intervention may be optimal if one hopes to correct skill deficits before they have become entrenched. For example, Waldrop and Halverson (1975) found evidence which suggests that differences in preschoolers' social competence and peer acceptance remains fairly stable well into the elementary years without intervention. Gersten, Langner, Eisenberg, Simcha-Faga, & McCarthy (1976) found evidence to suggest that the behavioral correlates of social status become stable and predictive by age six.

Coie and Kupersmidt (1983) also found evidence which pointed to the stability of behavioral patterns. In an experiment, they formed groups of boys and then watched to see what behaviors would emerge. They found that children within the newly formed groups quickly assumed similar roles to those which they had held in past groups. In addition, their social status in the newly formed groups was clearly a

function of their behavior. That is, boys who became rejected or neglected were those who engaged in inappropriate behavior.

The tendency to act in accordance with past roles is compounded by reputational biases which have been formed by middle childhood and may make it difficult for a child to break out of established sociometric status even if new social skills are learned (Bierman & Burman, 1984). These features make interventions in the early childhood years (which include preschool and kindergarten aged children) attractive.

Some attempts have been made to teach social skills to young children demonstrating social skill deficits. There is reason to believe, therefore, that social skill with preschoolers can be successful (O'Connor, 1972; O'Connor, 1969; Zahavi & Asher, 1978; Mize & Ladd, 1988).

There are some features of social skill training, however, which do not lend themselves easily to intervention with this age group. As noted earlier, Ladd and Mize (1983) have suggested that social skills

> refer to children's ability to organize cognitions and behaviors into an integrated course of action directed toward culturally acceptable social or interpersonal goals.

A major feature of social skill training is its heavy reliance on cognitively-based, direct instruction procedures (Asher, 1985). These procedures, in their present form, require cognitive and linguistic skills which may be beyond the abilities of most preschoolers (Mize & Ladd, 1988) This

is quite possibly why social skill training research in recent years has focused more on elementary age children than on preschool populations.

In summary, there are many reasons to train children in social skills while they are still young. There are in addition some problems inherent in working with this age group. The selection of kindergarten children in the present study as the age group for training was based on the weighing of the benefits and difficulties of using a cognitively based training tool with young children. The kindergarten age seemed unique in that the children were still young enough to benefit from early training in social skills, yet old enough to draw on cognitive skills not as readily available to the three or four year old child.

The Present Study

Purpose. The present study is intended as a pilot. Its purpose is to test the effectiveness of using direct instruction on the disadvantages of aggressive behavior as a means for helping sociometrically rejected children break patterns of aggression which may be contributing to the rejection they experience. Its purpose is, in addition, to refine, amplify, and correct where necessary, the intervention procedure and the methods employed to collect and analyze data.

Similarities and contrasts with closely related research. Although consistent with Bierman et al. (1987) and Zahavi

and Asher (1978) in taking a direct approach to aggressive behavior, the present study differs in several important ways from each of these studies. There are two essential differences between the present study and Bierman et al.. The first, though not necessarily the most important difference, (1987) is the method used to confront the child's aggressive behavior. Bierman et al. used a form of behavior modification to teach children not to use aggressive behavior in interaction with others. Children were told which behaviors were prohibited (no fighting or arguing, no yelling, no "being mean", etc.) and what the consequences would be for failure to abide by the prohibitions (temporary withdrawal of opportunity to earn tokens). When coupled with training in prosocial skills, these prohibitions were successful in reducing aggressive behavior and in raising sociometric status.

The present study examines the viability of a social skill training intervention which deals directly with aggressive behavior, as did Bierman et al., but does so using the traditional tools of the SST intervention rather than a form of behavioral modification. That is, the present study seeks to change the child's behavior by increasing her knowledge of the effects of her behavior on other children and giving her opportunities to practice new behavior patterns based on this increased awareness.

Secondly, as has been noted, Bierman et al. compared the effectiveness of a treatment condition which dealt only with

aggressive behavior to a treatment condition which provided training in prosocial skills alone. These conditions were, further, compared to a third treatment condition which provided training in prosocial skill and prohibitions against aggressive behavior. It was only this third condition which led to improved sociometric ratings form nontarget treatment partners.

The present study, while mindful of the probable advantage of a combined approach, explored the possibility, if only to rule out that possibility and confirm findings by Bierman et al., that training related to aggression alone would be adequate to lead to improvement in overall social functioning and improved sociometric status.

The present study is quite similar to that of Zahavi and Asher (1978) in that behavioral change is sought through directly instructing the child in the disadvantages of aggressive behavior to friendship making. The present study differs from Zahavi and Asher (1978) in that opportunity is given for practice in the trained for behavior, greater attention is given to promoting generalization of the trained for behavior, the children trained are of kindergarten rather then preschool age, and more skill training sessions are provided. In addition, the present study uses the researcher, rather than the classroom teacher, as the training agent.

Again, a central tenet of social skill training interventions in prosocial skills is the reliance on direct

instruction as a means of changing behavior. Although the overly aggressive children may be aware that they are not well liked by other children, they may not associate their aggressiveness with others responses to them. In other words, although most children know it is "wrong" to hit or "put down" others, they may not have made the association between this behavior and the rejection by other children which they experience. One of the goals of this intervention, then, is to increase the child's awareness (knowledge base) of the ineffectiveness of aggressive behavior as a strategy for friendship making.

The hypotheses. The research question seeks to test the viability of a social skill training intervention the purpose of which is to reduce aggressive social behavior by directly addressing said behavior. Specifically it is hypothesized that 1) strengthening sanctions against aggression and increasing knowledge of the negative effects of aggressive behavior, 2) allowing opportunity to "practice" alternative methods of handling potentially conflictual situations, and 3) supporting generalization of these alternative strategies, may be effective in reducing aggression and improving a child's overall social skills.

It is further hypothesized that decreased aggressive behavior and increased social skill, will result in increased sociometric standing.

This might occur in one or more of at least two ways: 1) If aggression is curtailed, other children may find the

child a more desirable playmate and be willing to spend more time with her. This in turn gives the child more opportunity to participate in positive social interaction and thus learn prosocial skills; 2) The behavioral void created with the child's curtailment of aggressive action may be filled directly by more positive, prosocial behavior on the part of the trained child.

Additional Training Procedure

Although the primary purpose of this study has been to test the hypothesis that direct training to eliminate aggressive tendencies would be effective, an additional component was included to help trained children consider alternative behaviors to aggression in social problem solving. Researchers have found that the ineffectual problem solving processes of low achievers is related to the fact that they expected to "know" the answer to a problem. Effective problem solvers, on the other hand, look at "knowing" as a process of attending to detail, drawing on prior knowledge, and carrying through a step-by-step consideration of all related information (Bereiter & Engelman, 1966; Bloom & Broder, 1950). It seems possible that this phenomenon also applies to problem solving in social situations. Therefore, as sanctions against aggression were explored with trained children, these children were also encouraged to think of other ways conflict with others might be handled. This component

seemed minimally necessary in providing an effective intervention. While problem solving was encouraged, few suggestions were given as, again, the elimination of aggressive behaviors rather than the development of prosocial behaviors was the primary focus of this intervention. Helping children to consider alternatives to aggression in social situations, however, might legitimately be considered training in a type of prosocial social skill. To the extent that this is the case, the results of the present study remain somewhat ambiguous in terms of the effects of distinct intervention components. This ambiguity might be avoided in future interventions by providing separate treatment groups for each component as well as the treatment group which combines two or more intervention strategies. Bierman et al. (1987) as well as others have used this approach to directly assess the importance each component played in helping treatment children break aggressive patterns.

Method

Overview

Development of the methods of the present study involved decisions about the selection of subjects, selection of a sociometric instrument, selection of a measure of aggression and overall social functioning, selection of skills to be trained in, the development of a training procedure, and data collection procedures. These methods will be discussed in the following sections.

Subjects

Background. The intervention took place within two public school kindergartens, an AM kindergarten and a PM kindergarten. Both classes were composed of children of middle and lower-middle SES. Both classes were taught by the same person. Children participating in the intervention, five males and three females, were ages five or six. Four of the children were white and four were black.

Parents informed. Parents of children in the two classrooms were informed that some children in the classroom would be participating in a training process in friendship making. Parents were asked to sign a permission slip if they had no objection to their child's participation in the training process. All parents in both classrooms signed

slips allowing their children permission to participate in the training process (See Appendix E for sample).

Selection. Three criteria were used in the selection of children for experimental and control conditions: 1) overall teacher assessment of social skill, 2) teacher assessment of aggression, and 3) sociometric status.

Children who scored in the lowest quartile on the overall teacher assessment form (that is, those children assessed to be most lacking in social skills) were selected from the two classrooms to participate in the intervention.

In addition, those children selected were also "required" to exhibit heightened levels of aggression (in the upper quartile of the class), again as determined by the same teacher assessment forms. As Ladd (1981) and Coie (1985) have argued, social skill training interventions can be expected to be more successful if they are targeted to those children exhibiting deficits in those specific skills which the intervention addresses, in this case excess aggression.

Further, because sociometric rejection has been found to be a highly reliable predictor of children at risk for later life difficulty (Parker & Asher, 1987), only those aggressive children who also received low mean sociometric scores (in the lowest 30 % of the class) were included in the intervention. All children who were judged by the teacher to be overly aggressive and low on overall social skill, also fit the criteria of sociometric rejection except one. This child was eliminated from the study and the child

next in line was selected.

Assignment to control and treatment groups. The children were then matched by overall teacher assessment scores and randomly assigned to control and treatment groups. It was discovered in the process of matching the children by overall teacher assessment scores that the same pairs had equivalent aggression scores as well and could, thus, also be matched on aggression scores.

The treatment and control groups consisted of four children each.

Training Procedures

Components of training. Each child was trained individually. Each intervention session ran approximately 10 to 15 minutes per child and was held in a nearby vacant classroom.

The training sessions incorporated the model suggested by Ladd and Mize (1983) which was mentioned previously. To summarize, this model proposes that children operating successfully socially must 1) possess knowledge of appropriate social goals and strategies for achieving those goals, 2) be able to translate those goals into behavior, and 3) be able to generalize this behavior through the use of self-monitoring.

Consistent with this model of social competence, children were first introduced to information about the consequences of aggressive behaviors to friendship making. This step was

repeated during each session. In addition information introduced in previous sessions was reviewed.

The four children selected for the treatment group were told they would be learning about some new ideas on making friends with other children.

In the sessions following session # 1, the trainer and child also participated in a simulation of the behavior(s) to be worked on during the coming week. Generalization and self-monitoring was encouraged by asking the child to work on the target behavior during the week and report on the results at the next session. In addition, the final session was held in the classroom in an attempt to help the child further generalize the trained for behaviors.

The training sessions were conducted by the researcher. A script was written by the researcher to act as a guide during the intervention sessions. The script (see Appendix B) was adhered to as closely as possible in an attempt to provide a uniform intervention. However, it also seemed likely that the success of the intervention depended on responding to the developmental and skill level of each particular child. Flexibility was, therefore, employed in the presentation and evolution of each session. The role playing components, for example, could not be perfectly predicted as the input of the child was critical to the course of the role playing session. The script in Appendix B describes this process in greater detail.

Content of Training Process

Two groups, a treatment group and an attention control group, of four children each, were established. Children were randomly assigned to one of the two groups.

The treatment group was trained in skills designed to increase awareness of the negative consequences of aggressive behavior. Aggressive tendencies selected for retraining were selected on the basis of teacher and researcher observations of types of aggression seen most frequently in this particular classroom and partially confirmed by data obtained on the teacher assessment form. Behaviors to be extinguished, which were defined as aggressive in that their intent is to hurt another individual, were 1) hitting and 2) verbal aggression (threats, name calling, derisive laughter, tattling, etc.). This scheme is roughly analogous to that proposed by John Gottman (1983) in coding aggressive behavior. In Gottman's code, the term "squabble" was used to denote anger, verbal or physical aggression, insults, yelling, whining, sarcasm, threats, retaliation, or tattling.

As an examination of the intervention script (see appendix B) will reveal, the training sessions focused on the above behaviors in the following order:

1 Hitting

2 Verbal aggression - yelling at or saying "mean" things to another child.

3 Tattling

4 Derisive laughter

Each behavior was discussed in depth, and reviewed in future sessions. Behaviors which were given particular weight in discussion and practice sessions were hitting and yelling at or saying "mean things" to another child.

A word of explanation may be in order on the selection of tattling and derisive laughter as aggressive actions. Tattling might be looked at as a desire to "get" the other child in trouble or to get the other child to do what one wants. Both the classroom teacher and the researcher believed they saw a high association between those children who tattled habitually and children who displayed other kinds of aggression (hitting or verbal threats). This impression was partially confirmed by the data obtained through the teacher assessment form and will be discussed further in the results section.

The majority of the children in the control and treatment groups were observed to laugh loudly at other children when mistakes, such as tripping or failing to answer a teacher's question correctly, occurred. The purpose of this laughter seemed to be to "put down" or degrade the victim. Since this behavior was quite blatant and hurtful and appeared to be an expression of derogation as noted by Putallaz and Gottman (1981), it was chosen as a behavior for which retraining would be given.

Again, although derisive laughter and tattling were dealt with separately and specifically they were considered to be

specific behaviors which might come under the general category of verbal aggression.

Parallel, non-treatment, activities were conducted with the attention control children. When, for example, dolls were used with the experimental subjects to explore sanctions for aggressive acts (see Appendix B, session 3), the same dolls were used with the control children in a play format which did not include the trained for skills.

Dependent Measures

Sociometric status. Assessment of sociometric status (how well the child is liked) has been found to be one of the most reliable means for identifying children at risk for later life difficulties (see Parker & Asher, 1987 for review). For example, Cowen, Pederson, Izzo, Babigian, and Trost (1973) included a sociometric measure in a number of measures designed to identify later life difficulties. These measures included grade point averages, IQ scores, teacher ratings, self-concept scores, absenteeism, and school nurse referrals. Children were assessed initially at third grade and then periodically for the next thirteen years. Of all measures taken, those of sociometric status were shown to be most predictive of the child's later life difficulties.

In addition, sociometric measures have been shown to be relatively stable over time. For example Oden and Asher (1977), using nomination and rating-scale measures, found

test-retest reliability ratings (over a six week period) of .69 for nomination of a friend, .82 for a "play with" rating scale, and .84 for "work with" rating scale.

The two methods of ascertaining sociometric status indicated in the above paragraph, rating scales and peer nomination measures, represent the most frequently used approaches to measuring the child's sociometric status (Moore & Updegraff, 1964; Roistacher, 1974; Singleton & Asher, 1977; add additional from big 9). The rating scale sociometric (see Appendis E), which uses a Likert-type scale, has been found to be a more reliable measure of sociometric status over time than other sociometric assessment measures (Oden & Asher, 1977; Thompson & Powell, 1951; Asher, Singleton, Tinsley, & Hymel, 1979). This procedure was, therefore, used to assess sociometric status at pre-treatment, post-treatment, and follow up.

Overall teacher assessment. A very simple teacher assessment form (see Appendix D) was used to identify children whose social behavior was not skillful. This assessment was also used to determine change in aggressive levels in trained and control groups at post intervention and follow- ups one and two.

The original assessment was modified slightly to elicit greater sensitivity to those aggression related behaviors of particular interest - physical and\or verbal aggression, and tattling.

The teacher was aware that the intervention concerned the

reduction of aggressive behavior but was blind to which children were in the treatment group and which were in the control group. In this way the teacher was able to act as a resource in the design of the intervention specific to behavior she observed in her classroom. In addition, it was hoped that her awareness of the behavior of interest would strengthen the clarity with which she reported on aggressive levels in control and experimental children. At no time were specific children discussed in this context. When the in class generalization was conducted the teacher left the room for that period.

Teacher assessment of aggressive behavior. In addition, those behaviors included in the teacher assessment which pertained specifically to aggressive behavior were examined separately to determine the effect, if any, of the intervention on the reduction of these specific behaviors (see * items on Appendix D). This was done to obtain some reading of the success of the intervention in reducing those specific behaviors which were being worked on.

A problem identified in the social skills training studies Ladd, 1981; Markell, 1981) has been that the means of identifying skill deficits has not been tightly coupled with the skill domains used in skill training. Ladd (1981) assessed children's performance of targeted behaviors both before and after skill training to ascertain the degree (if any) of actual usage of those skills children were trained in.

The present study measured the effects of training in two specific behaviors targeted in the SST sessions. These behaviors, tattling and level of physical and verbal aggressiveness, were included in the overall teacher assessment to identify perceived decreases or increases in these specific behaviors as a result of training (see Appendix D).

Data Collection Procedure

Sociometric data. Each child was brought into a separate room by the experimenter and given the sociometric assessment. This procedure was followed at pretest, posttest, and follow-up. The posttest was given immediately following the five part, three week intervention. The follow-up sociometric was given three weeks after intervention.

Faces consisting of a row of a frowning face (three points), a neutral face (two points), and a happy face (one point) were presented to each child in the class, individually. At the same time, pictures (all unsmiling) of each of the child's classmates were presented one at a time. The child was then asked to rate each child pictured according to "play with" criteria (# 1 - like to play with a lot, #2 - "sort-of" like to play with, # 3 - don't like to play with). A child's score on this measure was the total of all scores received from her classmates (See Appendix E for samples).

Teacher assessment data. The teacher assessment form (see Appendix D) was filled out by the classroom teacher following the same time line as that of the sociometric data - that is, pre-intervention, post intervention, follow-up # 1 (three weeks after intervention). In addition a second follow-up (follow-up # 2), six weeks after intervention, was given in hopes it would yield additional information about the success of the intervention.

Initially the classroom teacher was given the teacher assessment form one week before being asked to fill it out. She was asked to look it over briefly at that time in order to familiarize herself with the kinds of behaviors addressed by the form.

Results

Data analyses for the present study are divided into four major areas: 1) an overview; 2) correlation and multiple regression analysis of the variables comprising the teacher assessment instrument; 3) teacher assessment data consisting of analysis of aggression only data, analysis of data on tattling, analysis of a composite of aggressive behavior, analysis of overall teacher assessment data; and 4) analysis of sociometric data with an emphasis on data gathered from the child's own sex. Please see Appendix A for additional tables of data analysis.

Overview

Teacher assessment data for all children were complete and equal "n's" were obtained on all sets of analysis. There were four children in the treatment group and four children in the control group.

Equal "n's" for sociometric data were obtained by dropping from the data set any children from whom it was not possible to obtain sociometric information at all three assessment times. In other words, if a child was absent on the day sociometric assessments were run (and assessments could not be obtained within two or three days after the child's absence), all of that child's sociometric assessments were dropped from the data set. Fortunately this occurred in

only one or two cases in each class. In this way the number of subjects giving sociometric readings was uniform for all three assessment periods (pre, post, and follow-up).

Following the recommendation of Cronbach (1975) raw scores, means, and standard deviations are included for all data. Examination of descriptive data seems particularly critical when low numbers are used since reaching significance with low numbers is considerably less likely than when greater numbers are used. Examination of the raw data, therefore, can yield more information about the viability of the line of questioning the investigator is pursuing.

Correlation and Regression Analysis

Correlation and regression analyses include initial teacher assessment of all children in both classes (a total of 36 children). These analyses were performed to determine the correlation between those variables addressed by the teacher assessment form.

The correlation of the several forms of negative or aggressive behavior (verbal aggression, derisive laughter, and "tattling") covered by the teacher assessment form were of particular interest to the present study. Informal observation led teacher and researcher to believe there would be a correlation between these three behaviors. It appeared, for example, that children who scored in the upper quartile in aggressiveness, also tended to tattle more

frequently than other children. In addition, there is some support in the literature (Gottman, 1983) for the notion that high frequencies of aggressiveness and tattling are related. Correlation and correlation and regression analysis were examined to see if there was support for such a supposition.

As Tables 1 (correlation between heightened aggressiveness and other variables cited in teacher assessment form), 2 (multiple regression), and 3 (full correlation matrix) indicate, the relationship between "tattles on others" and "heightened levels of physical and\ or verbal aggressiveness" is unclear. Correlation data indicate a correlation of .40, with a significance level of $p < .05$. Although $p < .05$ might technically be considered to be statistically significant, other variables appear to be much more strongly correlated with "verbal and\or physical aggressiveness." For example, correlations with "not cooperative", and "frequently playfully aggressive" are both significant at $p < .001$.

Insert Tables 1, 2, and 3 about here

On the other hand, regression analysis (see table 2) reveals a much stronger relationship between tattles and aggressiveness. In regression analysis "tattles" covaries with "verbal and\or physical aggression" at a significance level of $p < .10$. The only other variable which covaries at

a higher significance level is "frequently playfully aggressive" at $p < .01$.

As noted, the strongest relationship revealed in the regression table (Table 2) is between "heightened verbal or physical aggressiveness" and "playful aggressiveness". Although intuition might suggest otherwise, some research suggests that these two behaviors are quite distinct from one another (Blurton, 1976; Humphreys & Smith, 1984). In addition, there is some evidence that popular children also tend to engage in playful aggression and that it reinforces social bonding among children (Pelligrini, in press). In other research, however, heightened aggression has been found to be related to rough-and-tumble play or playful aggressiveness (Dodge, 1983; Ladd, 1983). That is, children who tend to be playfully aggressive in their interactions, also tend to be more aggressive in other ways. This seeming contradiction in findings may be accounted for if one speculates on how popular versus rejected children may handle playful aggression. It may be that playful aggressiveness in rejected children tends to escalate into more serious and hostile forms of aggressive interaction whereas with popular children playful aggression does not escalate in this manner.

Correlation and regression data gathered in the present study, suggest a strong correlation between playful aggression and heightened aggressiveness in general

(see Tables 1, 2, and 3). In addition, the present study indicates a positive correlation between frequent playful aggression and behaviors such as "not cooperative with others" and "not a good sport". However, frequent playful aggression correlates negatively with "does not play together well with others" ($-.35$, $p < .05$), indicating that playful aggression may be positively correlated with some forms of prosocial activity such as playing well with others but negatively correlated with other forms of prosocial activity such as cooperating with others. Therefore, teasing apart the two variables, general aggressiveness and playful aggressiveness, may be somewhat complex.

Intervention Effects

Teacher ratings of aggression. As has already been mentioned, one way of assessing the success of an intervention is to ascertain whether there has been a change in the specific behaviors the children received training in. The present intervention placed a great deal of stress on training to reduce aggressive behavior. Therefore, whether or not there has been a change in the level of aggressive behavior exhibited is of paramount interest. Table 4 shows the frequency with which each child in the treatment or control groups was rated as "verbally or physically aggressive" by the classroom teacher. In addition, means and standard deviations are given.

As Table 4 indicates, the frequency of aggression scores (which were paired) for treatment and control children were exactly the same prior to intervention with a mean of 1.75 and a standard deviation of .5. Low scores indicate greater aggressiveness and higher scores indicate a lesser degree of aggressiveness. For example, a score of 1 indicates maximum aggressiveness measured. Both treatment and control groups show reduced aggressiveness after the intervention, with a mean of 2.5 for each group. At follow-up # 1 the two groups begin to diverge with the treatment group continuing to make gains in reducing aggressive behavior with a mean of 3. The control dropped back to a mean of 2. By follow-up # 2, the treatment group shows continued gain in reduced aggressiveness (X = 4) over the control group (X = 3). However, as the data indicates, both groups reduced aggressiveness by follow-up # 2. In part, the reduction in aggressiveness of both control and treatment groups may be due to the fact that the control group had fewer children to fight with since treatment children were increasingly able to avoid conflict.

A Split-Plot Factorial (SPF), 2 X 4 ANOVA was run on the data measured by the variable "verbally or physically aggressive with other children" (see Table 5). In the Split Plot it is the interaction of time (factor B) and treatment effect (factor A), or treatment over time, which is of interest. When the treatment occurs over time, as in the present experiment, the Split Plot has the advantage of

providing increased power to detect a treatment X time interaction effect. Power to detect a treatment effect, A, is reduced, however. The effect of interest then, in the application of this model, is the interaction effect (AB). The split plot analysis of variance for aggressive behavior shows significant interaction effects ($p < .05$).

Dependent "t" tests were performed to confirm a treatment effect and identify the location(s) of the significant interaction (see Table 4). The dependent "t" test, rather than another method of multiple comparison, was used to take advantage of the additional power gained by the initial pairing of children by overall assessment and aggression scores. The "t" test was not significant at follow-up # 1 but reached significance ($p < .015$) by follow-up # 2.

Insert Tables 4 and 5 here

"Tattle" only assessment data. An additional behavior in which treatment children received specific training was "tattling". As has been mentioned, this behavior was considered to be a subset of verbal aggressiveness. As with aggression data, higher means in "tattling" data indicate decreases in tattling behavior. Although the results in Tables 6 and 7 indicate a significant difference between treatment and control groups, this difference is almost solely due to differences at pretest between the two groups.

As is apparent when the data are examined, the treatment group went into the experiment with a mean which was a full point higher than that of the control group. At follow-up #1, the same one point difference still existed. At follow-up #2, difference had increased to 1.25, not a particularly notable gain. Therefore the real change between the treatment and control group was only .25. As the Split Plot ANOVA (Table 7) indicates, although the treatment effect carries a significant F ratio, the F ratio of the interaction effect is not significant. Since it is the interaction effect, or treatment over time, which of greatest significance in this analysis, the data indicate there was no treatment effect for tattling.

An examination of the standard deviations is of interest and may account for a portion of the statistical difference between the two groups. The pre-treatment variability as indicated by standard deviation scores for the treatment group (1.70) starts out at almost double that of the control group (.96). Following intervention and thereafter, however, the standard deviation of the treatment group is less than half that of the control group. Even though there was little overall change in the mean scores for the two groups, the decreased variance of the treatment group may indicate that the treatment children had learned something that led to greater behavioral stability and, therefore, may have been less subject to external stimuli or other phenomena inducing variability in subject behavior.

Insert Tables 6 and 7 about here

Composite of aggression related behaviors. The aggression composite consisted of data from "playful aggressiveness", "verbal and/or physical aggressiveness", and "tattles" variables. As the regression Table 2 indicates, "tattles" and "playful aggression" covary with "verbal and/or physical aggressiveness" significantly more than do other variables in the regression table.

Composite data was examined to explore the possibility that the composite of these three variables would show significant change as a result of the intervention. A split-plot ANOVA was also used in analyzing composite aggression scores. As Table 8 indicates, when results of composite indicators are considered, an interaction effect ($p < .10$) between treatment effects and time at follow-up # 1 is revealed. It appeared possible that a larger number of subjects would have yielded a more substantial interaction effect. Therefore, additional analyses were carried out to further explore these results. A simple dependent "t" test was used to compare pre-intervention and follow-up results of the treatment and control groups. Again use of the dependent "t" was possible because teacher assessment scores were matched initially. The dependent "t" at follow-up # 1 revealed a significant treatment effect ($p < .05$). By

follow-up # 2, although the levels of aggressive behaviors continued to drop, the difference between the two groups was no longer significant.

An examination of standard deviations for this analysis is interesting. Before treatment, the standard deviation of the treatment group was double that of the control group. After treatment, the standard deviations of the treatment group are consistently less than that of the control group.

Insert Table 8 about here

Overall teacher assessment data. The overall teacher assessment reveals information about the overall social skillfulness of the treatment and control children. One of the researcher expectations was that a reduction in aggressive behavior would result in increased prosocial behavior. Results are shown in Table 9. Higher scores are indicative of greater social skillfulness. Interestingly, mean scores for both treatment and control groups fell steadily through follow-up # 1, although control group means fell more sharply and the gap between the two groups steadily widened. Thus, there was a decrease in overall social skillfulness for both groups. At follow-up # 2, however, this downward trend reversed itself with the control group mean returning to baseline and the treatment

group mean showing a marked increase above baseline. This sudden rise in overall skillfulness on the part of treatment children does suggest the possibility that growing control of aggressive behaviors may have led, by time four, to an increase in prosocial behavior on the part of treatment children.

A split-plot (SPF) 2 X 4 ANOVA was used to assess the interaction of treatment effects (factor A), with initial, post, and follow-up scores (factor B). Results are shown in Table 10. The data indicate no significant interaction effects. On the basis of this assessment alone, then, results did not support the hypothesis that social skill training in the disadvantages of aggressive behavior, would result in increased overall social skill. Dependent t-test results do show a trend toward significance ($p < .10$) at follow-up # 2. Because the treatment and control groups were small, a non-significant finding is not surprising. On the other hand, the low numbers, of course, make over-interpretation of non-significant trends risky.

Sociometric Results

It was hypothesized that decreased aggression and increased prosocial skills would result in increased sociometric status. The following includes analyses of soicometric rating scale results through various manipulations of the data, including comparison of same sex and both sex results, overall sociometric ratings, frequency

of positive ratings, and frequency of negative ratings. The various manipulations reveal different aspects of the sociometric results. No significant results were revealed, although results were, without exception, in a direction consistent with a treatment effect.

An examination of the data reveals several interesting points. Tables 11 and 12 consist of the total points each control and treatment child received on the rating scale (1 = like a lot, 2 = neutral, 3 = don't like) from peers of both sexes 11 and from peers of the same sex 12. Lower scores are indicative of higher sociometric status. As Table 12 indicates, children in the treatment group received a mean of 13 points on the rating scale before intervention and control children received a mean of 13.5 points before intervention. After intervention treatment children's mean score dropped to 11.75 but rose slightly at follow-up to 12. Mean score for control children rose to 14 points after intervention and to 15.5 at follow-up.

Scores from children of both sexes followed a roughly similar pattern. Treatment children received a mean score of 32.5 before intervention, 30.25 after intervention, and 29.75 at follow-up. Control children received a mean score of 32.75 before intervention, 31.5 after intervention, and 33.5 at follow-up. Since <u>lower scores indicate more positive ratings</u> from peers, the treatment group improved in social standing while the control group deteriorated. Although the low numbers used in this study (n=4) and that

fact that it is intended as a pilot, make examination of raw data justifiable and necessary, low numbers also temper any conclusions which might be drawn. Independent t scores were non-significant (t=.94 for ratings received from same sex peers; t = .90 for ratings received from peers of both sexes).

As Tables 11 and 12 indicate, sociometric data from same sex peers is in the same direction and follows a similar pattern as that of sociometric data from children of both sexes. At follow-up in Table 11 there is a fifteen point gap between total points for the treatment group and control group (134 points minus 119 points = 15). Likewise, Table 5 (b) reveals a fourteen point difference between control and treatment groups at follow-up (62 minus 48 = 14). Most of the difference in a child's sociometric ratings, therefore, appears to be accounted for by ratings received from same sex peers. This pattern of results between same and both sex sociometric data was consistently apparent in other approaches to the sociometric data as well. Therefore, only same sex ratings are shown and discussed in the results section while sociometric ratings received from both sexes are provided in Appendix A.

Table 13 reports the frequency and mean frequency with which treatment and control children received negative ratings from same sex peers. That is, data in 13 reflect the number of children who gave treatment or control children a negative rating rather than the total or mean

score from the rating scale as is reflected in Tables 5 (a) or 5 (b). As Table 13 reflects, treatment children had a mean of 1.75 negative ratings from peers before intervention. Although, a mean of 1.75 for negative scores may seem small, the number of same sex peers was, of course, approximately half that of both sex peers. So that in the morning class there were 8 boys and 9 girls who were present during all three times in which sociometric data was collected; in the afternoon class 9 boys and 8 girls were present all three times. Same sex scores were based, then, on ratings from 7 or 8 children since a child did not rate her or himself. The mean of negative scores received dropped to 1.5 after intervention and returned to a baseline of 1.75 at follow-up. Mean number of negative ratings for the control group was 2 before intervention, 2.5 after intervention, and 3.67 at follow-up. The increasing gap between control and treatment groups appears to be due more to an increase in negative ratings for the control group than a decrease in negative ratings for the treatment group. Although the gap increases between control and treatment groups in a direction consistent with a treatment effect, that difference is non-significant.

Table 14 reflects the frequency and mean frequency with which treatment and control children received positive ratings from same sex peers. Treatment children received a mean of 3.25 positive ratings before intervention, 4.25 positive ratings after intervention, and 4.25 positive

ratings at follow-up. Control children received a mean of 4 positive ratings before intervention, 3 positive ratings after intervention, and 2.75 positive ratings after intervention. Again the gap that developed between control and treatment children was non-significant.

When the data are examined in terms of the number of negative ratings received versus the number of positive ratings received, both appear to have had an impact on a child's sociometric status. The difference at follow-up between treatment and control groups appears to be a function of an increase in the number negative ratings control children received, an increase in the number of positive ratings treatment children received, and a decrease in the number of positive ratings control children received. Both positive and negative ratings appear to have played a part in the end differences (non-significant) between control and treatment groups.

Hartup, Glazer, and Charlesworth (1967), in an observational study of preschoolers, provide some findings which may be relevant to this data. Hartup et al. found that positive social behavior was related to positive sociometric nominations but was unrelated to negative sociometric nominations. Negative social behavior was, on the other hand, related to negative sociometric nominations by peers but not to positive nominations (Coie, in press). The increases in positive sociometric nominations by treatment children, therefore, lend tentative support to the

hypothesis that a decrease in aggressive behavior would lead to increases in prosocial behaviors which, in turn, would lead to increased sociometric standing.

In summary, although results from sociometric assessments are non-significant, they are consistently in the direction of a treatment effect. In addition, change in numbers of positive and negative ratings received both appear to play a part in the rating gap that developed between treatment and control groups after the intervention.

Insert Tables 11, 12, 13, and 14 here

TABLE 1

Correlations Between Heightened Levels of Physical and\or Verbal Aggressiveness and Other Variables as Cited Below

Variable	Correlation	Significance
Is not cooperative with other children	.78	.0000***
Is not helpful to other children	.57	.0002***
Does not talk with other children	-.35	.04*
Does not keep trying in games	-.04	.84
Does not share	.55	.0005***
Does not show interest, participate	-.30	.08
Does not play together well	-.26	.12
Is frequently playfully aggressive	.67	.0000***
Does not takes turns	.54	.0006***
Does not listen to others	.26	.13
Is not a good sport	.71	.0000***
Tattles on others frequently	.40	.017*

n = 36 *** p < .001 * p < .05

data on this table show initial behavior correlations between all children as gathered on teacher assessment form

TABEL 2: Multiple Regression Table, Dependent Variable: Heightened verbal and\or physical aggression

Indep. var.	coefficient	SE	t
Is not cooperative with other children	.31	.29	1.08
Is not helpful to other children	.14	.24	.57
Does not talk with other children	-.35	.22	-1.56
Does not keep trying in games	.04	.18	.25
Does not share	.35	.30	1.15
Does not show interest	-.44	.34	-1.27
Does not play together well	.07	.23	.29
Is frequently playfully aggr.	.34	.10	3.40**
Does not take turns	.11	.30	.37
Does not listen to others	-.23	.22	-1.05
Is not a good sport	.08	.30	.26
Tattles on others frequently	.23	.13	1.74*

** p < .01 * p < .10 n = 36

TABLE 3
Correlation Matrix
of Variables on Teacher Assessment Form

	not coop	play agg	not talks	not helpful	not tries	not shares	not interest	not plays	not turns	not listens	not sport	not tattle	aggresive
not cooperative with others	1.0000 (36) .0000	.4432 (36) .0068	-.0316 (36) .8549	.7350 (36) .0000	-.0243 (36) .8881	.6606 (36) .0000	-.0764 (36) .6578	.0344 (36) .8419	.7000 (36) .0000	.4078 (36) .0135	.8707 (36) .0000	.4947 (36) .0022	.7826 (36) .0000
is frequently playfully aggressive	.4432 (36) .0068	1.0000 (36) .0000	-.2801 (36) .0980	.2848 (36) .0923	-.0353 (36) .8379	.2401 (36) .1583	-.2913 (36) .0848	-.3549 (36) .0337	.1974 (36) .2485	.1259 (36) .4642	.3651 (36) .0286	.0506 (36) .7696	.6725 (36) .0000
does not talk with others	-.0316 (36) .8549	-.2801 (36) .0980	1.0000 (36) .0000	.2761 (36) .1031	.3249 (36) .0532	.2280 (36) .1811	.7336 (36) .0000	.8011 (36) .0000	.2888 (36) .0875	.2582 (36) .1284	.0393 (36) .8198	.2397 (36) .1591	-.3470 (36) .0381
not helpful with others	.7350 (36) .0000	.2848 (36) .0923	.2761 (36) .1031	1.0000 (36) .0000	.1897 (36) .2679	.7652 (36) .0000	.3547 (36) .0338	.3414 (36) .0416	.8406 (36) .0000	.6412 (36) .0000	.8194 (36) .0000	.6535 (36) .0000	.5743 (36) .0002
does not keep trying in games	-.0243 (36) .8881	-.0353 (36) .8379	.3249 (36) .0532	.1897 (36) .2679	1.0000 (36) .0000	.3070 (36) .0686	.4420 (36) .0070	.1726 (36) .3141	.3121 (36) .0638	.3044 (36) .0710	.1281 (36) .4566	.2426 (36) .1539	-.0358 (36) .8356
does not share	.6606 (36) .0000	.2401 (36) .1583	.2280 (36) .1811	.7652 (36) .0000	.3070 (36) .0686	1.0000 (36) .0000	.4175 (36) .0113	.3676 (36) .0274	.8760 (36) .0000	.5340 (36) .0008	.7455 (36) .0000	.5023 (36) .0018	.5500 (36) .0005
does not show interest, participate	-.0764 (36) .6578	-.2913 (36) .0848	.7336 (36) .0000	.3547 (36) .0338	.4420 (36) .0070	.4175 (36) .0113	1.0000 (36) .0000	.7503 (36) .0000	.4181 (36) .0112	.4876 (36) .0026	.1683 (36) .3266	.3647 (36) .0288	-.2955 (36) .0802
does not play together well with others	.0344 (36) .8419	-.3549 (36) .0337	.8011 (36) .0000	.3414 (36) .0416	.1726 (36) .3141	.3676 (36) .0274	.7503 (36) .0000	1.0000 (36) .0000	.3956 (36) .0169	.2943 (36) .0814	.1134 (36) .5102	.2501 (36) .1413	-.2606 (36) .1247
does not listen to others	.4078 (36) .0135	.1259 (36) .4642	.2582 (36) .1284	.6412 (36) .0000	.3044 (36) .0710	.5340 (36) .0008	.4876 (36) .0026	.2943 (36) .0814	.6352 (36) .0000	1.0000 (36) .0000	.6110 (36) .0001	.6524 (36) .0000	.2569 (36) .1303
is not a good sport	.8707 (36) .0000	.3651 (36) .0286	.0393 (36) .8198	.8194 (36) .0000	.1281 (36) .4566	.7455 (36) .0000	.1683 (36) .3266	.1134 (36) .5102	.8163 (36) .0000	.6110 (36) .0001	1.0000 (36) .0000	.6414 (36) .0000	.7083 (36) .0000
tattles on others frequently	.4947 (36) .0022	.0506 (36) .7696	.2397 (36) .1591	.6535 (36) .0000	.2426 (36) .1539	.5023 (36) .0018	.3647 (36) .0288	.2501 (36) .1413	.6392 (36) .0000	.6524 (36) .0000	.6414 (36) .0000	1.0000 (36) .0000	.3956 (36) .0169
is frequently aggressive	.7826 (36) .0000	.6725 (36) .0000	-.3470 (36) .0381	.5743 (36) .0002	-.0358 (36) .8356	.5500 (36) .0005	-.2955 (36) .0802	-.2606 (36) .1247	.5425 (36) .0006	.2569 (36) .1303	.7083 (36) .0000	.3956 (36) .0169	1.0000 (36) .0000

TABLE 4

Aggression Only (one measure)

higher scores indicate reduced aggression

		Before Intervention	After Intervention	Follow-up # 1	Follow-up # 2
	s_1	2	3	3	4
Treatment	s_2	2	3	4	4
Group	s_3	1	2	2	4
	s_4	2	2	3	4
Totals		7	10	12	16
$\bar{X}$		1.75	2.5	3*	4.0**
sd		.5	.58	.82	0
	s_5	2	2	1	2
Control	s_6	2	2	2	3
Group	s_7	1	2	2	3
	s_8	2	4	3	3
Totals		7	10	8	11
$\bar{X}$		1.75	2.5	2*	2.75**
sd		.5	1	.82	.5

* $p < .20$ (two tails) NS ** $p < .015$ (two tails)

N=4 pairs

TABLE 5

Split Plot Factorial

Aggression Only (one measure)

Level of Physical and\or Verbal Aggression

Time 4 (follow up # 2)

Source	SS	df	MS	F
1) Btwn. Bl.	9.22	7	1.32	
2) A (treat.)	2.53	1	2.53	(2/3) 2.27 NS
3) Bl. w. A	6.69	6	1.12	
4) w. Bl.	16.75	24	.70	
5) B (time)	10.6	3	3.53	(5/7) 17.65
6) AB	2.59	3	.86	(6/7) 4.3 **
7) B x Bl.w. A	3.56	18	.20	
Total	25.97	31		

** p < .05 (two tails)

TABLE 6

Rate of Tattling

		Before Intervention	After Intervention	Follow-up #1	Follow-up #2
Treatment	s_1	1	4	3	3
Group	s_2	3	4	4	4
	s_3	5	4	3	4
	s_4	4	4	4	4
total =		13	16	14	15
$\bar{X}$ =		3.25	4	3.5	3.75
sd		1.70	0	.58	.5
Control	s_5	2	2	1	1
Group	s_6	3	3	4	3
	s_7	1	4	2	3
	s_8	3	3	3	3
total		9	12	10	10
$\bar{X}$ =		2.25	3	2.5	2.5
sd		.96	.82	1.29	1

Higher #'s represent more favorable rating by teacher or less tattling, N of 8

TABLE 7

Split Pplot Factorial on Rate of Tattling

Source	SS	df		MS	F
1) Between Blocks	20.47	7		2.92	
2) Treatment, A	9.03	1	2/3	9.03	4.75*
3) Blks. W/ A	11.41	6		1.90	
4) Within Blocks	14.25	24		.59	
5) Time, B	2.35	3	5/7	.78	1.18
6) Interaction, AB	.09	3	5/6	.03	.05
7) B X Bl. w/ A	11.81	18		.66	

* $p < .10$

TABLE 8

Teacher Assessment of Composite Aggression Levels

	Before Intervention	After Intervention	Follow-up #1	Follow-up #2
Treatment Group:				
totals	28	38	39	41
$\bar{X}$	7	9.5	9.75*	10.25**
sd	1.63	1.29	1.5	2.06
Control Group:				
totals	28	33	30	34
$\bar{X}$	7	8.25	7.5	8.5
sd	.82	1.5	2.52	2.34

* dependent t test at time 3, $p < .05$ (one tail)

** dependent t test at time 4, NS

TABLE 9

Overall Teacher Assessment

		Before Intervention	After Intervention	Follow-up # 1	Follow-up #2
Treatment	s_1	41	46	37	50
Group	s_2	44	46	42	53
	s_3	46	47	44	45
	s_4	50	41	47	50
total		181	180	170*	198**
$\bar{X}$ =		45.24	45	42.5	49.5
sd		3.77	2.71	4.20	3.32
Control	s_5	36	36	36	36
Group	s_6	48	44	42	47
	s_7	45	46	42	48
	s_8	49	43	40	47
total		178	169	160*	178**
$\bar{X}$ =		44.5	42.5	40	44.5
sd		5.92	4.35	2.83	5.69

Note: Scores indicate total points received on the teacher assessment. Higher scores are associated with greater social skill on the teacher assessment.

* dependent t NS, ** dependent t, $p < .10$ (one tail)

TABLE 10

Split Plot Factorial (SPF)

Overall Teacher Assessment

Source	SS	df	MS		F
1) Between Blocks	336	7	48		
2) Treatment, A	61	1	61	(2\3)	1.33
3) Blocks within A	275	6	45.83		
4) Within Blocks	315	24	13.13		
5) Time, B	139	3	36.33	(5\7)	5.25
6) Interaction, AB	17	3	5.66	(6\7)	.64*
7) B x Blocks W. A	159	18	8.83		
TOTAL	651	31			

* NS

TABLE 11

Total Score Sociometric results from both sexes

Lower scores indicate more positive ratings

		Before Intervention	After Intervention	Follow-up
Treatment Group	s_1	33	28	29
	s_2	31	32	33
	s_3	39	36	32
	s_4	27	25	25
Total		130	121	119
$\bar{X}$		32.5	30.25	29.75
sd		2.06	4.75	5
Control	s_5	33	32	38
Group	s_6	35	37	38
	s_7	33	31	34
	s_8	30	26	24
Total		131	126	134
$\bar{X}$		32.75	31.5	33.5
sd		2.06	4.51	6.61

independent t = .90 at follow-up, NS

TABLE 12

Sociometric Assessment

same sex, total score

		Before Intervention	After Intervention	Follow-up
Treatment	s_1	11	8	10
Group	s_2	19	17	19
	s_3	14	15	10
	s_4	8	7	9
Total		52	47	48
$\bar{X}$		13	11.75	12
sd		4.69	4.9	4.69
	s_5	9	10	14
	s_6	17	18	19
	s_7	20	19	21
	s_8	8	9	8
Total		54	56	62
$\bar{X}$		13.5	14	15.5
sd		5.91	5.23	5.8

independent t test = .94 at follow-up, NS

TABLE 13

Sociometric Assessment

same sex, total # of negative ratings received

	Before Intervention	After Intervention	Follow-up
Treatment Group:			
Totals	7	6	7
$\bar{X}$ =	1.75	1.5	1.75
sd	2.06	1.73	1.5
Control Group:			
Totals	8	6	11
$\bar{X}$ =	2	2.5	3.67
sd	1.83	1.29	2.5

Independent t tests at times 2 & 3 are NS

TABLE 14

Sociometric Assessment

same sex, positive ratings only

	Before Intervention	After Intervention	Follow-up
Treatment Group:			
Totals	13	17	17
$\bar{X}$ =	3.25	4.25	4.25
sd	.5	1.71	.96
Control Group:			
Totals	16	12	11
$\bar{X}$ =	4	3	2.75
sd	2.31	2.31	2.5

independent t tests at times 2 & 3 are NS

Summary and Discussion

Research and theory have been presented in this paper which suggest social skill, the ability to interact successfully with others, is of importance to children's present and future well being as family members, students, and workers (Parker and Asher, 1987; Schweinhart, et al., 1986). In addition, evidence has been presented which suggests the costs to society are high if the child's social development is neglected (Asher, 1987; Schweinhart et al., 1986).

Social skill training research has grown out of an awareness of the importance social skills play in the child's life. Parker and Asher (1987), for example, in a review of literature related to social skillfulness, suggest adequate peer interaction is a necessity, not a luxury, for healthy development in children.

Social skill training interventions have explored the effects of direct instruction and training with children exhibiting skill deficits. For the most part these interventions have examined the effects of training in prosocial skills (Coie, in press). The present study explores concerns articulated by Coie (in press) and Bierman, et al. (1987) that prosocial skill training with children who are aggressive and rejected may be inadequate, in and of itself, to change aggressive behavior patterns. It is possible that the sociometric rejection of children

identified as aggressive may be, in large measure, a function of entrenched aggressive patterns rather than deficiencies in prosocial skill alone. If this is the case, interventions which deal directly with patterns of aggression may be more successful in not only changing patterns of aggression, but also in increasing overall social skillfulness and sociometric acceptance.

Viability of Intervention in Reducing Aggressive Behavior

The purpose of the present study has been to pilot the effectiveness of a social skill training intervention which addresses aggressive behavior directly. Clear evidence was found for the effectiveness of the treatment in reducing aggressive behavior among treatment children. Differences between treatment and control children were significant at the $p < .02$ level after treatment at follow-up # 2. This finding is consistent with others (Zahavi and Asher, 1978; Bierman, et al., 1987) who also found significant reductions in aggressive behavior with treatments addressing aggressive behavior directly. In light of evidence which suggests SST is more effective when targeted to children exhibiting deficits in those skills specifically addressed by the intervention (Ladd, 1981), such outcomes are not surprizing. They lend credence to the argument that excessive aggression is a behavior which can be successfully dealt with directly rather than through less direct interventions designed to increase prosocial skill.

Viability of Present Study as a Method for Increasing Overall Social Skillfulness and Increasing Sociometric Standing

However, of equal or greater interest to the present investigation, was the possibility that a reduction in aggression, as a result of the intervention, would lead to increases in overall social skillfulness and sociometric standing.

Data on these results are less clear cut. As a pilot study, the issue is not simply whether there is enough evidence to support the hypothesis at a statistical level of significance. Clearly, if this is the only consideration, the hypothesis cannot be supported. The issue is, rather, whether there is enough evidence to support continued exploration of the hypothesis with a larger pool of subjects. As has been noted, most findings in the present study are inconclusive due to the small number of subjects used. Data trends, however, are consistently in a direction supportive of the hypothesis and do suggest a larger pool of subjects might reveal significant increases in overall social skillfulness and sociometric status.

In addition, sociometric status has not always been responsive to changes in behavior (Bierman & Furman, 1984). It has been argued that it may take time for children whose behavior has changed to establish a more positive reputation among peers. For example, Oden and Asher (1977) found greater increases in sociometric status one year after

intervention than were found immediately following intervention. It is possible, then, that the reduction in aggressive behavior might lead to an improvement in sociometric status with increased time.

Alternative Interpretations

Research by Zahavi and Asher (1978) has been cited several times in support of the effectiveness of dealing directly with aggressive behavior. Zahavi and Asher, however, did not measure changes in overall social skillfulness or sociometric standing and can offer, therefore, no information related to an interpretation of these aspects of the present intervention.

It is possible that overall social skillfulness and sociometric trends in the direction of treatment effects occurred by chance. Another, perhaps more viable interpretation of these trends might be that they are exactly as they seem. The fact that the data did show a significant reduction in aggressive behavior, but did not result in a significant increase in prosocial behavior as measured by the overall teacher assessment, suggests that reduction in aggressive behavior alone may not be sufficient to elicit significantly greater prosocial behavior. It may be that overall skill and sociometric status are affected in a positive direction by training in aggression reduction but that these increases are not adequate to make a deep, generalized and sustained difference to the child.

This possibility is consistent with findings of Bierman, et al. (1987) where boys in one condition were trained to reduce aggressive or negative behavior. Trained boys in this condition, in addition to initiating less negative interaction, were observed to receive more positive interactions from their classmates immediately after treatment. Six week later, however, they were no longer receiving increased positive behavior from their classmates. That is, reductions in aggression did appear to help in overall social functioning but not enough to have deep and sustained effects on overall functioning. On the other hand, training in prosocial skills produced less immediate but more stable behavioral improvement. Only the intervention which combined sanctions against aggressive behavior with training in prosocial skills, however, resulted in sociometric improvements and the greatest sustained behavioral improvements. These results clearly suggest that interventions which address aggression directly are strengthened by attention to training in positive social skills.

Because of the marked stability of aggression over time (Olweus, 1979) and indications that it may be more resistant to skill training interventions (Coie & Krehibiel, 1984), an intervention which addresses both aggressive behavior and prosocial deficits may be particularly important with rejected, aggressive children. Such a multi-dimensional approach seems likely to result in a more powerful

intervention with a population of children for whom change may be more difficult.

There may be some aggressive children who do have adequate prosocial skills. For these children training to reduce aversive behavior might be sufficient. Others, however, may also be lacking in prosocial skills and may need a combined intervention to bring about behavioral changes which will have a greater chance of impacting deeply and broadly enough on the child that overall social skillfulness and sociometric status increases. Inquiry into the nature of the rejected, aggressive child's skill deficits would be helpful. For example, does the excessively aggressive child often (or usually, or infrequently) also display deficits in prosocial skill? The success of Bierman et al. (1987) with an intervention which addressed both control of aggression and prosocial deficits suggests this may be the case but more direct inquiry into this question would be helpful.

Anecdotal data gathered in the training process of the present study also suggests that a combined approach may be most effective in changing overall social skillfulness and sociometric status of rejected aggressive children. It often appeared quite difficult for treatment children to think of alternative prosocial behaviors to aggressive responses. If alternative prosocial strategies do not readily occur to aggressive children, it may be that

training in these behaviors would at least give them a place to start.

Treatment children sometimes recited the trained for behaviors in a rote like manner suggesting they had heard them many times before and from many sources other the intervention. It may be that the power of the training is compromised by the familiarity of the prohibitions ("don't hit" ,etc.) related to aggression reduction interventions. Training in prosocial skills might increase the overall effectiveness of the intervention by adding material less familiar to treatment children.

Future Directions

If a combination of training to reduce aggression and training to increase prosocial skill is considered a fruitful direction for future study, one question which arises is which interventions in aggression reduction ought to be explored?

As has been noted, the present study examined the effectiveness of an intervention in aggression reduction which followed traditional social skill training methods. As such, direct instruction was used to increase the child's knowledge of the effects of aggressive behavior on friendship making, opportunities for practice in alternative strategies to aggression were provided, and generalization was encouraged.

In contrast, Bierman et al. (1987) explored the efficacy of reducing aggressive behavior using traditional methods of behavior modification by punishing for aggressive behavior with the withdrawal of tokens.

Each of these approaches is roughly related to one of two lines of thought traced by Coie (in press). Coie suggests there are two major ways in which aggressive behavior has traditionally been earmarked for change and that these methods might offer guidance in developing interventions for an excessively aggressive subset of rejected children.

The first attempts to change the child's aggressive behavior by changing patterns of reinforcement of socializing agents such as parents or teachers. It is assumed that the child continues to behave aggressively because he is reinforced unintentionally for aggressive behavior. It is further assumed that the child's behavior will change if the patterns of reinforcement change. This is somewhat analogous to the approach taken by Bierman, et al.(1987) in that the contingencies of reinforcement were manipulated to bring about behavioral change in the child.

The second line of thought cited by Coie, which has been termed a "cognitive-behavioral" treatment method, attempts to alter the child's behavior directly through cognitive channels so that frustrating and provocative events no longer elicit the same level and intensity of aggressive response. The child is taught, in other words, strategies for achieving greater self-control. Children are taught to

interrupt their impulse to react aggressively to a stimulus by saying things to themselves which change the direction of their response from aggressive to more neutral or prosocial responses. Trainers discuss frustrating situations with children as problems to be solved and brainstorm on alternative strategies to aggression in dealing with these hypothetical situations. The present study is roughly analogous to this approach in that it seeks change through interventions which appeal to the child's ability to change his or her behavior if given information and opportunity to learn and practice alternative behavioral strategies. The motivating factor used in the present study was increased capacity for friendship formation whereas the motivating force appealed to by those studies cited by Coie appears to be the greater personal satisfaction derived when one maintains self-control. The present study, following the lines of many SST interventions and recognizing the high importance most children place on friendship, sought to help the child make the connection between the sociometric rejection she or he experiences and excessive aggressive behavior.

Each of these approaches offers advantages and disadvantages. Training significant adults in a child's life to alter their patterns of reinforcement so that non aggressive behaviors rather than aggressive behaviors are reinforced in the child, for example, may bring about change

but is, in all likelihood, a method which requires significant financial and time commitments.

Beyond the weighing of the advantages and disadvantages to each approach, however, is the question of which approach offers greater success in changing the child's behavior and in bringing about greater sociometric acceptance. This question might be explored by comparing the relative success of an intervention with the following conditions: 1) training in selected prosocial skills in combination with aggression prohibition as explored by Bierman, et al. (1987), 2) training in selected prosocial skills in combination with aggression reduction training as carried out in a manner similar to that of the present study, and 3) an attention control condition.

One final note: Throughout the intervention and during informal observation, derisive laughter was observed to be a very prominent behavior on the part of aggressive children. As already discussed, it was, therefore, included as a behavior to be dealt with in the social skill training sessions. Since derisive laughter was a behavior which received specific attention in the training process, the assessment of results would, no doubt, have been stronger if a separate measure of this variable had been included in the teacher assessment form. Instead it was subsumed under the heading of "verbal aggressiveness." Although there was precedence for this approach (Putallaz & Gottman, 1981), the prominence of derisive laughter in the informal observations

of the researcher and teacher, and in the training process itself, makes this an unfortunate omission. The advantage to having a separate measure for "derisive laughter", even though it might still be considered a subset of "verbal or physical aggressiveness", is that it would then have been possible to gauge somewhat the success of the intervention in reducing this specific behavior as was done with the behavior "tattles".

Conclusion

Traditional SST interventions with aggressive children have often relied upon training in prosocial skills to also decrease aggressive behavior (Coie & Koeppl, in press). The present intervention has taken the opposite approach by seeking information on the viability of an aggression reduction intervention in increasing overall social skillfulness and sociometric status. One method may be the mirror image of the other, resulting in interventions which are not optimally effective with sociometrically rejected, aggressive children. A more fruitful approach may be to acknowledge the distinct role each strategy plays in changing behavior and sociometric status.

Hartup et al (1967) found positive social behavior was related to positive sociometric nominations but was unrelated to negative sociometric nominations. Negative social behavior was, on the other hand, related to negative nominations by peers but not to positive nominations (Coie,

in press). This suggests that the two may measure quite distinct sets of behaviors.

Interventions which take into account the need for training, at least with some rejected, aggressive children, in both aggression reduction and prosocial skills may offer the most viable path in creating interventions which are successful in helping these children. If this is the case, the question then becomes which aggression reducing methods and which prosocial skill training interventions might offer the greatest help to these children. Future investigations in this direction seems warranted.

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APPENDIX A - TABLES

TABLE 1 A

Teacher Assessment of Composite Aggression Levels

		Before Intervention	After Intervention	Follow-up #1	Follow-up #2
Treatment	s_1	5	10	9	10
Group	s_2	9	11	12	13
	s_3	7	9	9	8
	s_4	7	8	9	10
totals		28	38	39	41
$\bar{X}$		7	9.5	9.75*	10.25**
sd		1.63	1.29	1.5	2.06
	s_5	6	6	4	5
Control	s_6	8	9	10	10
Group	s_7	7	9	8	10
	s_8	7	9	8	9
totals		28	33	30	34
$\bar{X}$		7	8.25	7.5*	8.5**
sd		.82	1.5	2.52	2.34

* dependent t test at time 3, $p < .05$ (one tail)

** dependent t test at time 4, NS

Note: Scores represent the total score received on assessment directly related to aggressive behavior. Lower scores indicate greater aggressiveness on the assessment.

TABLE 2 A

SPF on Aggression Composite at Time 3 (follow up # 1)

Source	SS	df	MS	F	
1) Between Blocks	45.32	7	6.47		
2) Treatment, A	8.08	1	8.08		
3) Blocks within A	37.24	6	6.21		
4) Within Blocks	32.01	16	2.00		
5) Treatment over time, B	16.58	2	8.29	(5\7)	9.70
6) Interaction, AB	5.17	2	2.59	(5\7)	3.03+
7) B x blocks w. A	10.26	12	.855		
TOTAL	77.33	23			

+ $p < .10$

TABLE 3 A

SPF - Sociometric Assessment

both sexes, total score

Source	SS	df	MS	F
1) Between Blocks	359	7		
2) A - treatment	7	1	7	
3) Blocks w. A	352	6	58.7	.12
4) Within blocks	80	16		
5) B	16	2	8	1.6
6) AB interaction	4	2	5	.40*
7) B x Blocks w. A	60	12	8.83	
Total	439	23		

* NS

TABLE 4 A

Sociometric Assessment

both sexes, positive minus negative ratings

		Before Intervention	After Intervention	Follow-up
Treatment	s_1	3-4 = -1	8-4 = 4	6-4 = 2
Group	s_2	7-6 = 1	7-7 = 0	5-6 = -1
	s_3	4-11 = -7	4-8 = -4	6-6 = 0
	s_4	8-3 = 5	10-3 = 7	9-2 = 7
Totals		-2	7	8
$\bar{X}$		-.5	1.75	2
Control	s_5	6-7 = -1	7-7 = 0	4-6 = -2
	s_6	4-6 = -2	3-7 = -4	2-8 = -6
	s_7	4-5 = -1	5-4 = 1	5-7 = -2
	s_8	8-6 = 2	8-3 = 5	9-1 = 8
Totals		-2	2	-2
$\bar{X}$		-.5	.5	-.5

independent t tests at times 2 & 3 are NS

TABLE 5 A

Sociometric Assessment

same sex, positive minus negative ratings

Higher values are indicative of more favorable ratings

		Before Intervention	After Intervention	Follow-up
Treatment	s_1	3-0 = 3	6-0 = 6	5-1 = 4
Group	s_2	3-4 = -1	4-3 = 1	3-4 = -1
	s_3	3-3 = 0	2-3 = -1	5-1 = 4
	s_7	4-0 = 4	5-0 = 5	4-1 = 3
Total		6	11	10
$\bar{X}$		1.5	2.75	2.5
sd		2.38	3.3	2.38
	s_5	6-1 = 5	5-1 = 4	2-2 = 0
	s_6	2-3 = -1	1-3 = -2	0-3 = -3
	s_7	2-4 = -2	1-2 = -1	3-6 = -3
	s_8	6-0 = 6	5-0 = 5	6-0 = 6
Total		8	6	0
$\bar{X}$ =		2	1.5	0
sd		4.08	3.51	4.24

independent t test at times 2 & 3 are NS

TABLE 6 A

Sociometric Assessment

both sexes, total # of negative ratings received

		Before Intervention	After Intervention	Follow-up
Treatment	s_1	4	4	4
Group	s_2	6	7	6
	s_3	11	7	6
	s_4	3	3	2
Totals		24	21	18
$\bar{X}$		6	5.25	4.5
sd		3.56	2.06	1.91
Control	s_5	7	7	6
Group	s_6	6	7	8
	s_7	5	4	7
	s_8	6	3	1
Totals		24	21	22
$\bar{X}$		6	5.25	5.5
sd		.82	2.06	3.1

dependent t obs. = 1.42, NS

TABLE 7 A

Sociometric Assessment

both sexes, positive ratings only

		Before Intervention	After Intervention	Follow-up
Treatment	s_1	3	8	6
Group	s_2	7	7	5
	s_3	4	4	6
	s_4	8	10	9
Totals		22	29	26
$\bar{X}$		5.5	7.25	6.5
sd		2.38	2.5	1.73
Control	s_5	6	7	4
Group	s_6	4	3	2
	s_7	8	5	5
	s_8	4	8	9
Totals		22	23	20
$\bar{X}$		5.5	5.75	5
sd		1.91	2.22	2.94

dependent t at time 3 = 2.325, NS. T crit = 2.353 @ $p < .05$ (one tail)

APPENDIX B

INTERVENTION SCRIPT

Overview. Each child was trained individually. Each intervention session ran approximately 10 to 15 minutes per child and was held in a nearby vacant classroom.

Process. In an effort to get the children to generalize the trained for behavior to the classroom setting and to remember each previous training, at the beginning of each session each child reported on her success in practicing the skill being trained for in the previous week.

The new concept was then introduced. The trainer asked a question and waited for the child's answer. If she answered "correctly", the teacher praised her and repeated her answer for her. If the child did not immediately give the "right" answer, the trainer gave hints and tried to lead the child to the "right" answer.

In the following sessions, the trainer and child participated in a simulation of the behaviors to be worked on for the coming week. These behaviors included not tattling, not hitting, not saying "mean things", and not laughing at others.

Attention-control Group. Parallel, non-treatment activities occurred with the attention control children. When, for example, dolls were used with the experimental subjects to explore sanctions for aggressive acts, the same dolls were used with the control children in a play format

which did not include the trained for skills. Equivalent amounts of time were spent with control and treatment children.

Adherence to the script. The script was adhered to as closely as possible in an attempt to provide a uniform intervention. However, it also seemed likely that the success of the intervention depended on responding to the developmental and skill level of each particular child. Flexibility was, therefore, employed in the presentation and evolvement of each session. The role playing components, for example, could not be perfectly predicted as the input of the child was critical to the course of the role playing session.

Although the child's responses are not included, the following format is intended as conversational.

SESSION 1

Setting the child up to succeed:

Trainer: "I've been told that you're very smart and will have no trouble learning new ways to make friends. Would you like to learn how to be a better friend and have more fun with other kids?

Establishing an alliance:

Trainer "I'm going to be your friend and help you learn how to have more friends. Would you like that? OK, I'm not going to tell other kids or your teacher what you tell me. I'm not going to get mad at you if you make a mistake.

That's not my job. My job is to help you make friends. OK?"

Trainer: "I want to tell you about some things that will make other kids not want to be friends with kids."

Behavior # 1, Hitting:

1) Introducing "hitting": "Does someone sometimes hit you? Do you sometimes hit someone else? What makes you hit someone or someone want to hit you?" Talk about this.

2) Thinking through consequences: "What happens when you hit? What does the other child do? How does the other kid feel? Does he want to be your friend? Does he want to play with you anymore? What happens when someone else sees you hit someone? Do you think that kid wants to be your friend? Do you think he thinks he wants to be friends with a kid that hits?" "Do you get what you want when you hit someone?"

3) Thinking through alternative strategies: " What could you do instead of hitting? What if you did X instead of hitting, do you think other kids would want to be your best friend and play with you?" "What could you do to get what you want without hitting? 'We can work this out, What can we do so we both get what we want?', etc. Do you think the other kids would want to be your friend if you talked like this."

4) Conclusion: "You should not hit others because that does not help you at all; they will not want to be your friends; they will not want to play with you."

5) Generalization: Send child back to room with an assignment. Tell him when will see him again. "Every time you think about hitting, I want you to think about what we talked about. See if you can do something else instead. Next time you can tell me how it went, OK?"

Again, the above as well as the following trainer statements and questions are meant to occur within the context of a conversation. The child's responses, questions, and comments are not included.

Behavior # 2, Verbal aggression:

1) Introducing "saying mean things": "Do other kids sometimes yell at you or say mean things to you? Do you sometimes yell at other children? What names do you sometimes call them?"

2) Thinking through consequences: "What might happen if you hit or yell at the other kid to get what you want? Do you want to be their friend when they yell at you? Do you think they want to be your friend when you yell at them? Do you think other kids want to be friends with a kid that says mean things to others? After you shout at a child, does he play with you nicely? What could you do instead of yelling or saying mean things to someone?"

3) Thinking through alternative strategies: "What are some other ways you could get what you want without having to hit or yell at someone?"

4) Conclusion: "You should not hit and shout at others because that does not help you at all; they will not be your best friends, they won't want to play with you, and so you would not be able to be happy at school and have lots of fun playing."

5) Generalization: Send child back to room with an assignment. Tell him when will see him again. " Every time you think about hitting or yelling, I want you to think about what we talked about. See if you can do something else instead. Next time you can tell me how it went, OK?"

II. SESSION 2:

1) Review: "Do you remember what we talked about last time? How did the hitting and yelling go? What did you do instead? Why is hitting not a good idea? Why is yelling or saying mean things not a good idea?"

2) Behavior # 3, tattling:

Steps one through four as outlined in the previous session are repeated. They include the following: "Do you think other kids in the room like you if you're a tattle tale? What do they think? Do you think you're teacher likes it? What does she think? What could you do instead?"

3) Behavior # 4, derisive laughter:

Again steps one through four are repeated and include the following: "Sometimes kids laugh at someone who makes a mistake. Does anyone ever laugh at you when you make a mistake? How does it make you feel? Does it make you want to be their friend? Do you ever laugh at someone else who makes a mistake? Do you think it makes them want to be your friend? Do you think other kids want to be your friend it they see you laugh at someone who makes a mistake? Even if you see other kids laughing at someone who makes a mistake, I want you to remember not to laugh."

4) Generalization and Conclusion: "What are you going to remember not to do?" Hitting - " What can you do instead?" Saying mean things - "What can you do instead?" Tattling - "What can you do instead?" Laughing - "What can you do instead?"

"This time I still want you to practice not hitting or saying mean things. But I want you to especially work on not tattling or laughing at other kids if they make a mistake. Let me know how things went next time. OK?"

III. SESSIONS 3:

1) Review: "What have we talked about so far? Did you practice not tattling? What did you do instead? Hitting? What did you do instead?" Same with verbal aggression and laughing at others.

2) Warm up with discussion of alternative ways of handling conflict:

A. Q: "Suppose you play with blocks and bricks with a friend and you both want to have a good time, what should you do? (Hint: You have many blocks and bricks. How can you both enjoy them?)" Type of answer likely: "Share the bricks or the blocks."

B. Q: "Suppose you have just one truck and you both want to play with it and have fun. What can you do? (Hint: Remember there is just that one truck but both of you want to play with it, can you do it at the same time?")
Type of answer likely: "You should take turns playing with the truck."

C). Q: "Suppose you have just one doll or just one teddy-bear and both you and your friend want to play with it, what can you do? (Hint: Do you think you can maybe find a game in which both of you can play with the doll or the teddy-bear at the same time?"
Type of answer likely: "You can play a game in which both of you can play with, the doll. For example, you can play house and one of you will be the father who dresses the doll and feeds her, and the other will be the mother who takes the doll for a walk and plays with her."

3) Practice, role play: Trainer suggests that she and child play together with dolls trainer has brought. The dolls are smaller than Barbie dolls. They are male and female, black and white. The trainer suggests enacting each

behavior which has been discussed and practiced to be followed immediately by enacting two other ways the problem might be solved without aggression. Bristle blocks are used to make desks and other items in the "classroom." Hints and help will be giving if needed but the intent is to 1) underscore, for each child, the aggressive behavior she is to avoid and 2) have each child actively think of other ways of handling the situation. The intent is also to have the child, as much as possible, run the role play.

4) Conclusion and Generalization. "So today we talked about and practiced not hitting, saying mean things, tattling, or laughing at others." Have the child state the particular behaviors when possible. "This week I want you to practice these things in your class and tell me how it went next time. OK?"

IV. SESSION 4:

1) Review: "What have we talked about so far? Did you practice not tattling? What did you do instead?" Hitting - same? Yelling - same? Laughing at others - same? "Do you remember why we said hitting, etc. wasn't a good idea?"

2) Practice: The trainer role plays with each child for 10 to 15 minutes using activities he or she have chosen to bring in from the classroom. "Want to play with the activity you've brought in? Lets pretend I'm another kid

and practice some of the things we've been talking about, OK?"

The four skills which have been discussed are role played - four situations that might elicit the discussed behavior (hitting, etc.). Trainer and child stop and talk as they go over each behavior being worked on; other possible ways of handling the situation are discussed and practiced. The trainer pretends to be the aggressor to give the child an opportunity to try out different ways of handling aggressive behavior from another child. When hitting is the topic the table will be tapped rather than the child. The intention is to increase the likelihood that each skill will be remembered by the child and to give him or her a chance to practice handling another aggressive child in ways other than retaliation.

3) Generalization and conclusion: The trainer reviews the four behaviors role played and instructs the child to practice in class and remember some things to tell for next time.

V. SESSION # 5

Generalization: The trainer stays in classroom for half an hour in the AM class and half an hour in the PM class while the teacher leaves the room so she will remain blind to which children are being trained. Ideally, the trainer intervenes in actual conflicts which treatment and control

children are engaged in. However, since conflict is a relatively infrequent behavior, it is unlikely that an actual aggressive incident will occur in the presence of the trainer. If conflict does occur while the trainer is present, alternative strategies to an aggressive response are explored with the child.

If an aggressive incident does not occur, children are reinforced for sanctions on aggressive behavior while in the midst of play with other children. That is, each treatment child is approached by the trainer and asked to identify the behaviors he or she is working on (ie not hitting, tattling, laughing when someone makes a mistake, or saying "mean" thing to others), what happens if one hits, etc., and what one might do instead. It is hoped that a brief discussion in the child's natural environment, about the trained for behaviors, will reinforce their use in that environment.

APPENDIX C

Dear Parents:

As a part of our ongoing commitment to increasing the effectiveness of our kindergarten programs, your child's classroom will be participating in a research project conducted by Dinane McClellan of the University of Illinois to explore ways children become friends. As a part of this project each child will be asked about how much he or she likes to play with other children in the class. Also as part of this project children will have their pictures taken. The pictures will remain in the classroom and each child's picture will be sent home with him or her at the end of the semester. Some children also will be participating in informal discussions about effective ways of playing with other children.

Please sign below indicating your consent for your child to participate in this project.

_____ has my permission to participate in the
(child's name)

project on friendship.

_____
(signature of parent/guardian)

APPENDIX D

Teacher's name: _____ Child's name: _____

RATING INSTRUCTIONS

The items below are concerned with the child's interaction with other children at school. Please complete each item according to your observation and impression of the child during the past week or two.

	Is cooperative and compliant with other children	5	4	3	2	1	Is defiant with other children
	Is helpful to other children	5	4	3	2	1	Is not helpful to other children
	Talks to other children	5	4	3	2	1	Does not talk to other children
	Keeps on trying when playing in games	5	4	3	2	1	Does not keep on trying in games
*	Is rarely verbally or physically aggressive with other chilren	5	4	3	2	1	Is sometimes aggressive
	Shares toys, games, materials	5	4	3	2	1	Does not share
	Shows interest and participates	5	4	3	2	1	Is apathetic and withdrawn
	Plays together with other children	5	4	3	2	1	Does not play together well
*	Is rarely playfully aggressive	5	4	3	2	1	Is frequently playfully aggressive
	Takes turns using materials or toys	5	4	3	2	1	Does not take turns
	Listens to other children when they are speaking to them	5	4	3	2	1	Does not listen to others
	Is a good sport to other children	5	4	3	2	1	Is not a good sport
*	Rarely tattles on other children	5	4	3	2	1	Tattles frequently

SOCIOMETRIC

name _____ class _____

class names: date____ date____ date____

Jarratt

Bobby

Tisha

Aaron

Brianna

Eboni e

Latrishia

Floyd

Nicki

Nikia

Blaine

Stephanie

Lindsay

Angela

Darrell

Britney

John

SOCIOMETRIC

name_____ class_____

class names: date____ date____ date____

Corey

Lisa

Rasunn

Monique

Teffany

Angel

Gregory

Renee

Cassie

Geanna

Nichole

Mathew

Laura

Johnnie

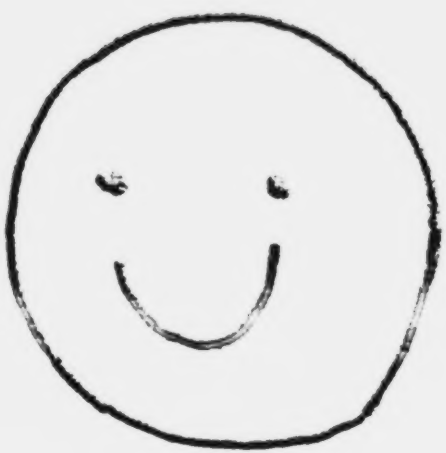
Elizabeth

Joey

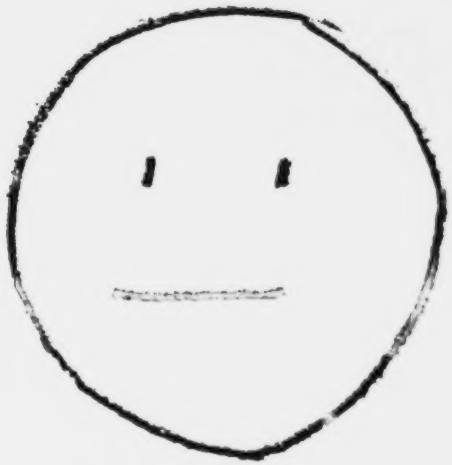
T or Terence

Kari

Tahir



1 *



2 **

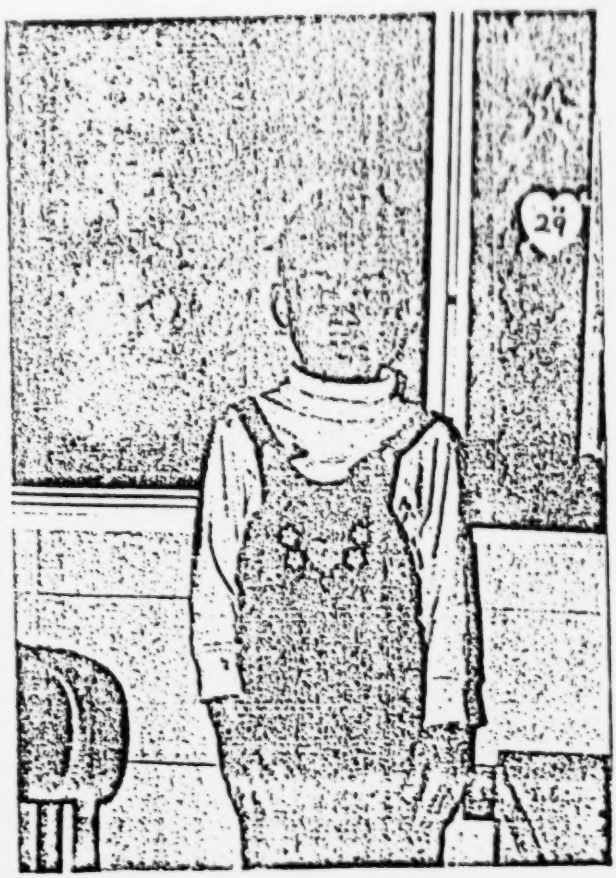
3 ***

* Like to play with a lot

** Neutral

*** Don't like to play with

2


29